Life Cycle Part & Component Knowledge Sharing Portal

Industry Day

8 May 2007

Background

- Recommendations
  - Create a Life Cycle Part & Component Knowledge Sharing Portal
  - Develop Improved Parts Management Tools and Metrics

Related Recommendations

- **Make Parts Management a Policy and Contractual Requirement**
- **Revitalize Parts Management within the Systems Engineering Discipline**

Issues

- **Parts management is difficult**
  - Data exists in numerous, diverse information systems
  - Many systems cannot communicate or exchange data
  - Some systems are old and difficult to use
  - Systems contain data that are duplicative, incomplete, or inaccurate

- **Parts management is costly**
  - Part and component selection
  - Part and component cataloging / documentation
  - Part and component logistics support / footprint management
  - DMSMS

LCPC KSP Objectives

- **Improve parts management throughout DoD**
  - Eliminate duplication
  - Improve data accuracy
  - Reduce errors
  - Decrease costs
  - Enable effective data system management
- **Promote and support increased standardization**
  - Lower life-cycle costs, shorter customer wait times, and fewer DMSMS events
  - Increased quality, reliability, and efficiency.
- **Promote data sharing and parts-related research**
  - Enable easy and effective conversion to a common data exchange standard
- **Permit greater integration of parts data resources between government and industry**
  - Promote and facilitate increased win-win voluntary data sharing
- **Provide a single point of entry for parts management data and tools**
  - Promote and facilitate creation of a shared parts management community and network

Approach

- Develop LCPC KSP quickly through spiral development approach
  - Establish shared Government/Industry portal development team
  - Create a virtual infrastructure to support PM community & network
  - Integrate and leverage DMSMS knowledge sharing portal
  - Identify a viable government/industry parts data exchange standard
  - Start developing a standard-based part selection query capability
- Evolve portal through customer-driven requirements
  - Identify Government/Industry governing body to lead & own project
- Employ COTS technologies to the maximum degree
  - Leverage and support existing parts-related marketplace
  - Integrate existing products, services & tools to benefit entire community

Community Ownership & Governance

- Initial portal concept and prototype developed through Government/Industry collaboration (PMRIPT & PSMC)
- Transition to "*Part Management Improvement Consortium*" (notional name)
- Owned by the members, governed by a Board of Directors, and supported by a small staff
- Self-funded through low membership dues (Not-for-profit - cover operating cost only)

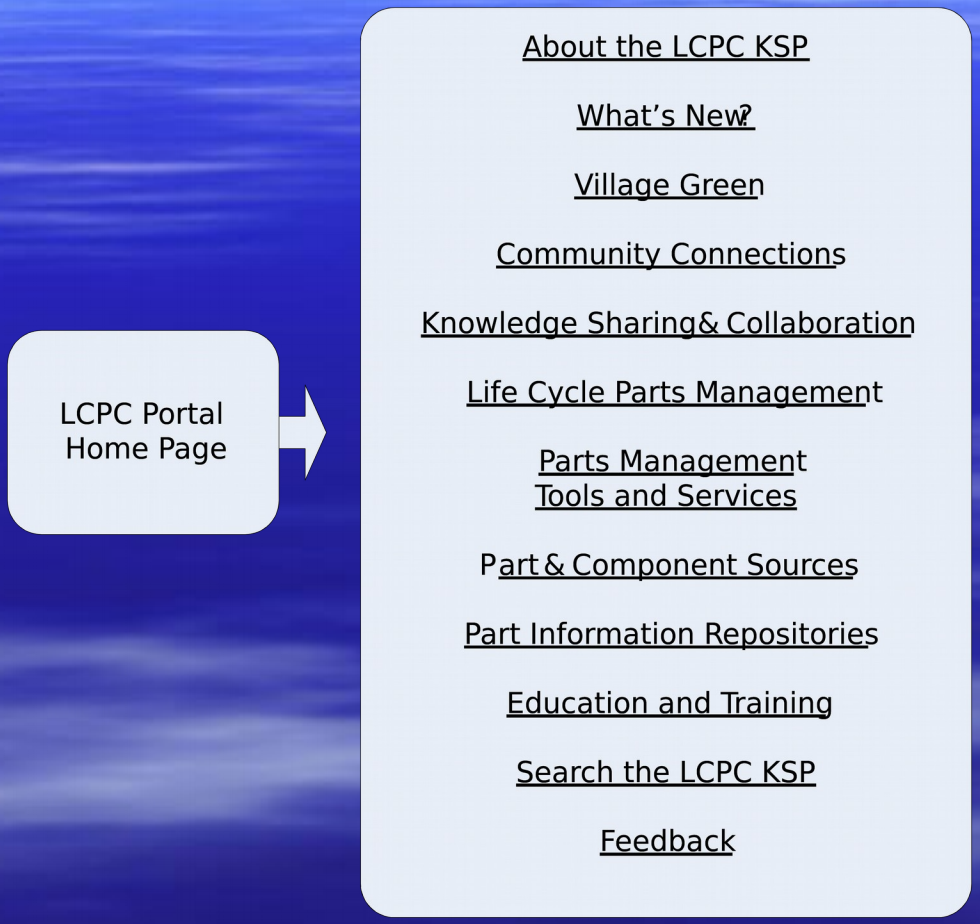
Benefits to the Members

- Lower costs
- More efficient & effective parts management
- Improved communication and collaboration
- Access to valuable tools and resources
- Resources to improve data quality
- Resources to enable low cost data conversion to community standard
- Access to unique portal presence for every community member company

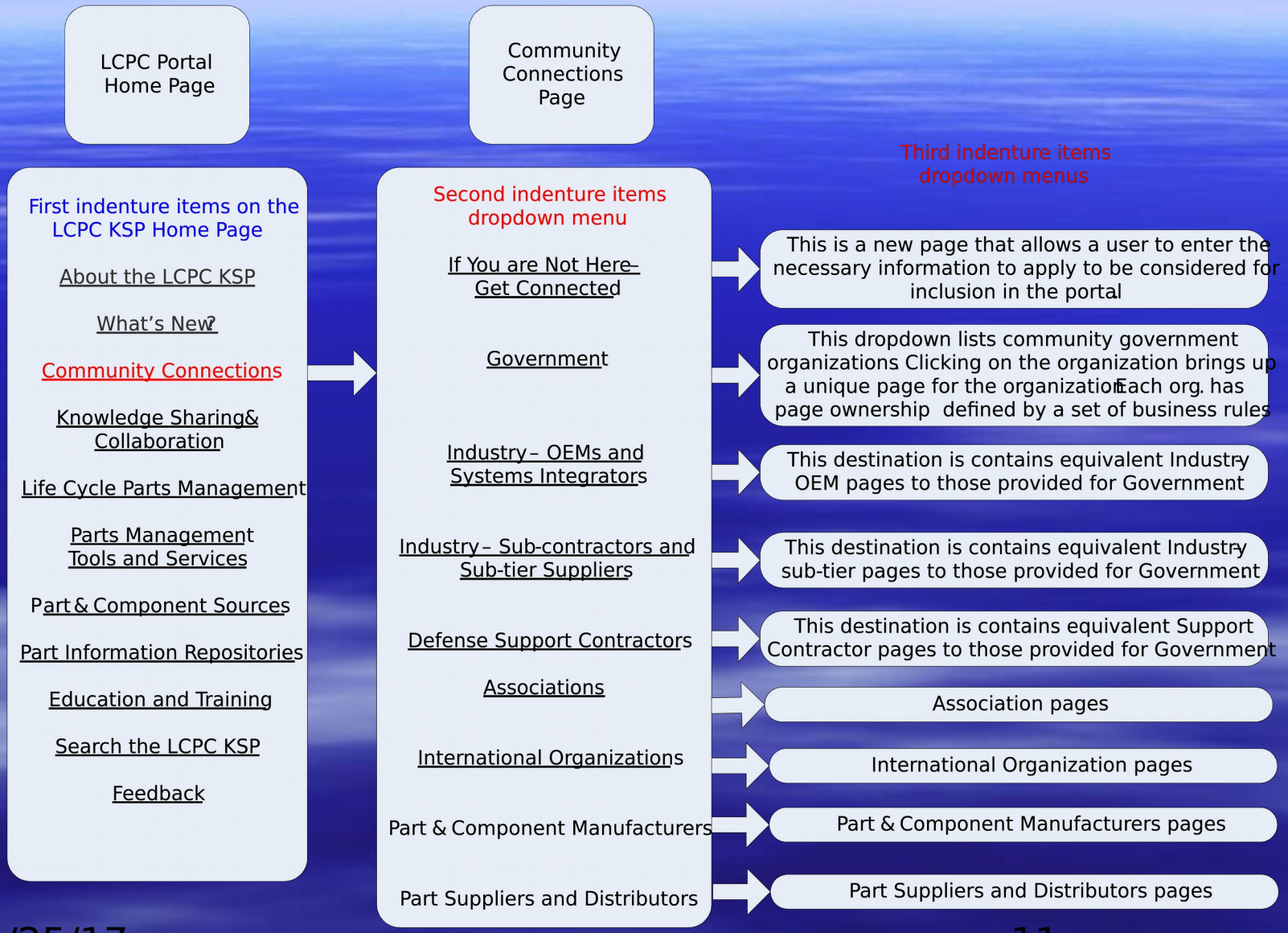
Spiral #1:
Initial Portal Presence

- Launch LCPC KSP home page
- Engage and involve stakeholder community
- Enable access to and use of wide range of existing resources (DMSMS, GIDEP, PMT, ASSIST, WSIT, E-Mall, SDW, DSCC resources, FLIS, etc.)
- Provide connectivity to all parts-related sites (within parts management network hub)
- Promote portal growth and community ownership
- Initiate transition to community governance structure

First Tier Functionality



Community Connections



Knowledge Sharing and Collaboration

LCPC Portal Home Page

Knowledge Sharing & Collaboration

Third indenture item dropdown menus. Click on a menu item and go to dedicated page(s) for that item

First indenture items on the LCPC KSP Home Page

About the LCPC KSP

What's New?

Community Connections

Knowledge Sharing & Collaboration

Life Cycle Parts Management

Parts Management Tools and Services

Part & Component Sources

Part Information Repositories

Education and Training

Search the LCPC KSP

Feedback

Second indenture items dropdown menu

Knowledge Sharing and Information Exchange Sites

Communities of Interest

This destination contains connections to specific sites that are dedicated to promoting and enabling knowledge sharing and information exchange. These might include

Best Practices

Lessons Learned

GIDEP

Ask the Community – Online

Also here are other sites that already exist across the community for the purpose of knowledge sharing

This destination contains connections to specific sites that are dedicated to promoting and sustaining communities of interest. These might include:

PMRIPT

PSMC

Systems Engineering

Groups of people with common parts management interests (e.g. item reduction)

Other established parts-related communities of interest from across the community

Life Cycle Parts Management

LCPC Portal Home Page

Life Cycle Parts Management

First indenture items on the LCPC KSP Home Page

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Second indenture items

Concept

Technology Development

Systems Development and Demonstration

Production and Deployment

Operations and Support

Third indenture item dropdown menus. Click on a menu item and go to dedicated page(s) for that item

This destination contains connections to information and sites that are specific to parts management within the given program phase. These might include people and disciplines such as

Program Managers and Program Teams
Acquisition and Contracting
Systems Engineering
Design Engineering
Quality Management
Parts Managers
Manufacturing

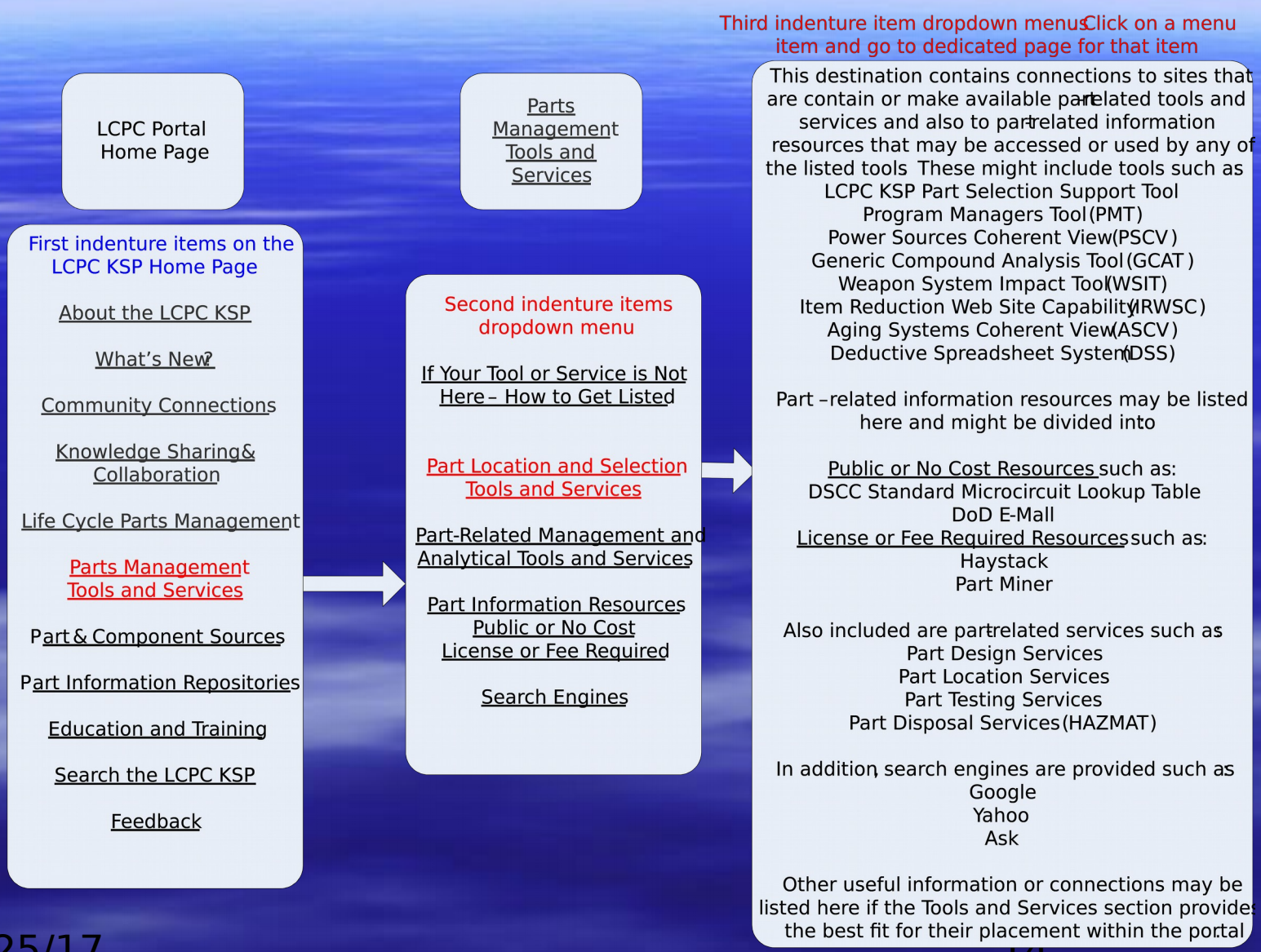
Also included are activities or events
Milestone Reviews
Parts Management Planning
System Test and Evaluation
Selecting Parts

In addition are destinations and resources that are relevant to people working in the phase
Preferred parts
Qualified Parts

Any other topic that is relevant to the phase and somehow connected to parts management might be included such as
Training Opportunities
Standardization Best Practices

Each phase of the product life cycle has parts related considerations and activities. To the extent we can identify what these are and provide value added information for members of the community we should include them in the portal design

Parts Management Tools and Services



Part & Component Sources

LCPC Portal Home Page

Part & Component Sources

Third indenture items dropdown menus

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Second indenture items dropdown menu

If You Are Not Here – How to Become Listed

Part & Component Manufactures

Suppliers & Distributors

Recyclers & Secondary Market

Qualified & Certified Sources (QPL, QML, QSL, Space Qualified, RADHARD

Buying or Purchasing Services

These destinations contains connections to sites from which parts may be directly purchased or obtained such as

Part & Component Manufactures
Intel
Motorola

Suppliers & Distributors
Electronic Parts Distributor
Parts Warehouse

Recyclers & Secondary Market
Rochester Electronics

Qualified & Certified Sources (QPL, QML, QSL, Space Qualified RADHARD,

Buying or Purchasing Services

Other useful information or connections may be listed here if the Part & Component Sources section provides the best fit for their placement within the portal.

Part-related Information Repositories

LCPC Portal Home Page

Part-related Information Repositories

Third indenture items dropdown menus

First indenture items on the LCPC KSP Home Page

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If You Are Not Here – How to Become Listed

Libraries

Information Repositories and Databases

Individual Publications Papers, Books, Magazines, Articles

Community Reading Room

These destinations contains connections to sites that contain part and component related information such as

Libraries
DSPO
DSCC
DAU
NIST

Essential Information Repositories and Databases
ASSIST
Shared Data Warehouse

Individual Publications Online
(Papers, Books, Magazines, Articles and Publications)
Better Serving the Warfighter

Publication Locator Tools
Look Smart/Find Articles

Community Reading Room
(Recommended Reading from Within the Community

Other useful information or connections may be listed here if the Part Information Repository section provides the best fit for their placement within the portal

Education and Training

LCPC Portal Home Page

Education and Training

Third indenture items dropdown menus

First indenture items on the LCPC KSP Home Page

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Education and Training

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If Not Listed Here– How to Become Listed

Online Education and Training

Schools and Universities

Certifications and Qualifications

Conferences, Symposia, & Traveling Road Shows

Community Calendar

These destinations contains information and connections to sites that address part-related education and training such as:

Online Education and Training
(Relevant educational opportunities available online)

Schools and Universities
(School and University web links and relevant classroom courses and curriculum)

Certifications and Qualifications
(Information about relevant certifications and qualifications and connections to sites where one can learn more or where they can be obtained)

Conferences, Symposia, & Traveling Road Shows
(Information about and connections to sites addressing relevant upcoming or traveling educational opportunities)

Community Calendar
(Relevant upcoming educational opportunities offered by and posted from within the community, e.g. Industry Day (also mirrored in What's New?))

Other useful information or connections may be listed here if the Education and Training section provides the best fit for their placement within the portal

Spiral #1: Membership Growth

1. PMRIPT & PSMC
2. DoD Parts Community
3. OEMs & System Integrators
4. Major Part Suppliers and Services
5. Government Departments and Agencies
6. Broader Parts Community

Spiral #2: Standard for Parts Data Exchange

- Approve, Initiate, and Demonstrate Part Data Exchange Standard
- Employ Part Selection Query Interface Tool to Demonstrate Application of Standard
- Translate, Map, and Build Standard-based Query Interface for Eight Selected Part Types
  - Microcircuits
  - Fasteners
  - Motors
  - Pumps
  - Valves
  - Batteries
  - O-Rings
  - Capacitors

Spiral #2: Part Selection

- **Part selection user interface**
  - User interface screens
    - Eight initial part types
    - Evolve to include all relevant part types
- **Part selection and query logic**
    - Standard code for communicating part parametric data (ISO-22745, ISO-8000)
    - Interface with part data sources and services
- **Strategy and Rules for integrating Government and Industry**
    - Parts data sharing
    - Preferred parts & priority ordering of query results
    - Protection of proprietary data
- **Planning and preparation for Spiral #3 capability demonstration**

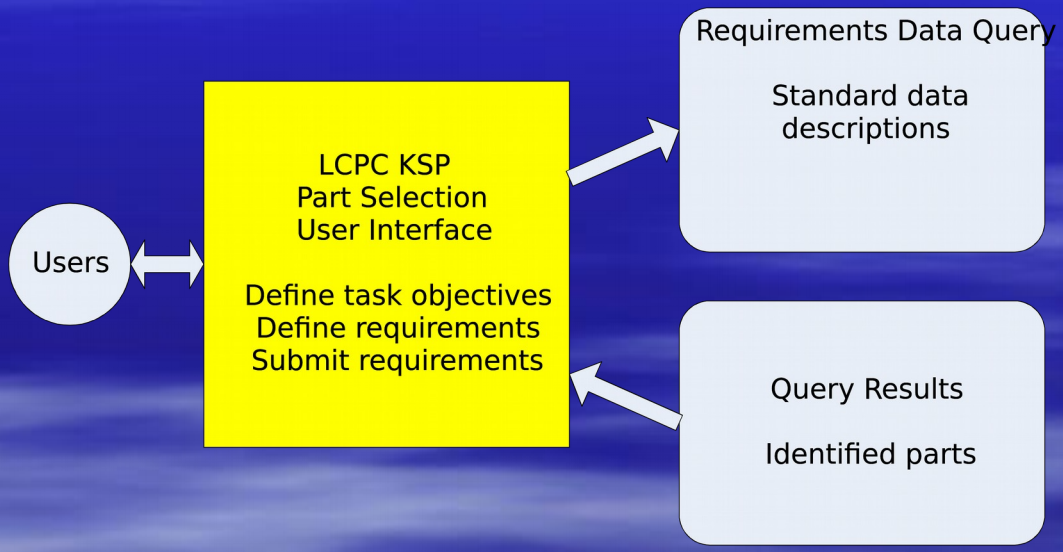
Prototype Part Selection Tool

Accessible through:

- **Site Map**
  - **Part Selection Tool**
- **Tools and Services**
  - **Part Selection Tool**
- **Life Cycle Parts Management**
  - **Design and Development**
    - **Design Engineering**
      - **Part Selection Tool**

Part Selection
Requirements Definition

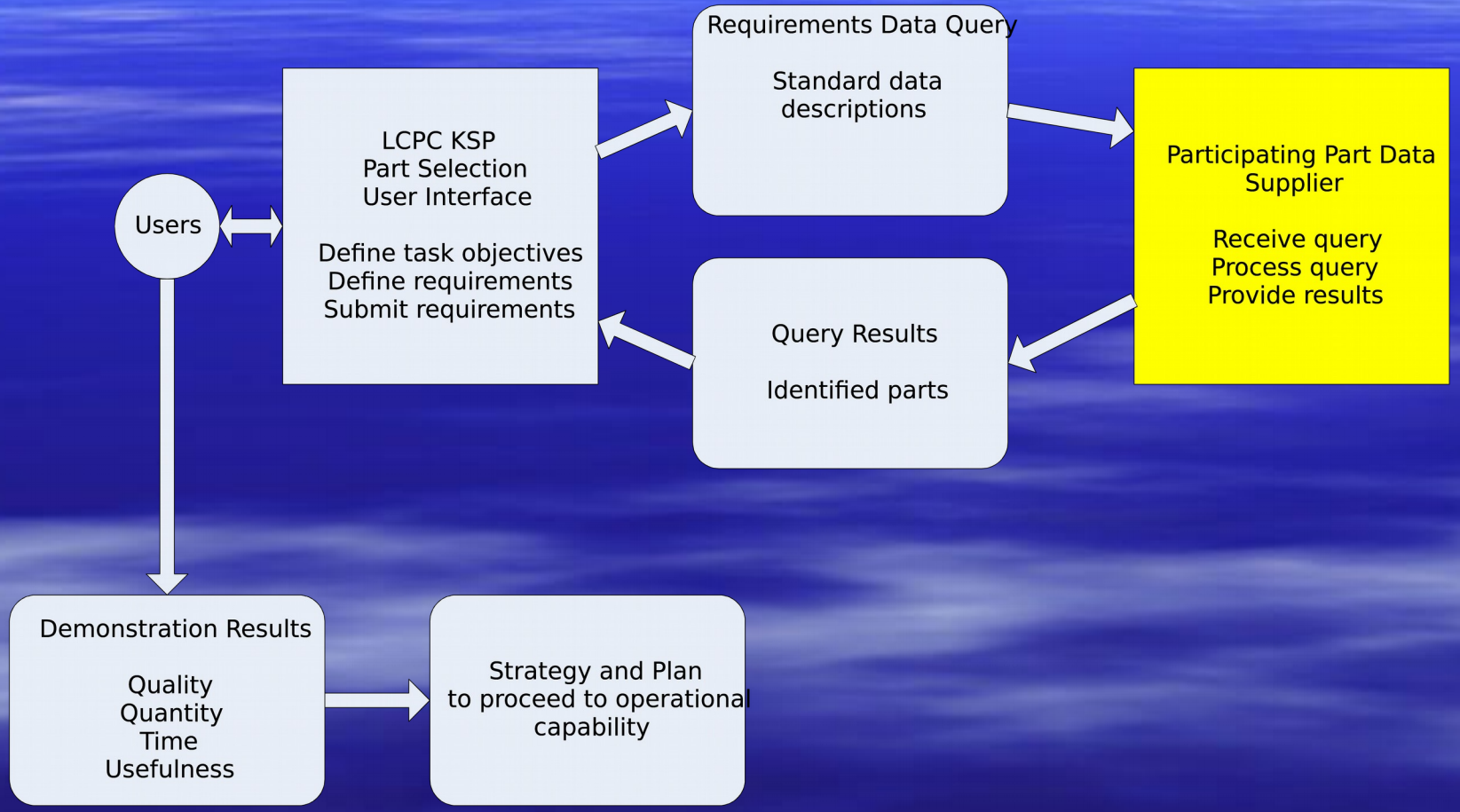
- *Part Selection Requirements Definition Screen Shot (microcircuit)*



Spiral #3: Capability Demonstration

- **Plan and organize demonstration process and protocols**
- **Invite 3rd party participation - part location service providers**
- **Conduct capability demonstration**
  - **Ability to receive query in standard (XML) format (ISO-22745, ISO-8000)**
  - **Ability to match query to available parts**
  - **Ability to return useful query results**
- **Evaluate demonstration results**
  - **Evaluation Team - Government and Industry Engineers (part selectors)**
  - **Standard query templates**
  - **Score results**
  - **Identify gaps**
- **Develop requirements / strategies for initial operating capability**
  - **Assure fair process and level playing field**
  - **Protect DoD, Industry, and participant interests**
  - **Negotiate service provider revenue model strategies and capabilities**
  - **Avoid legal issues**

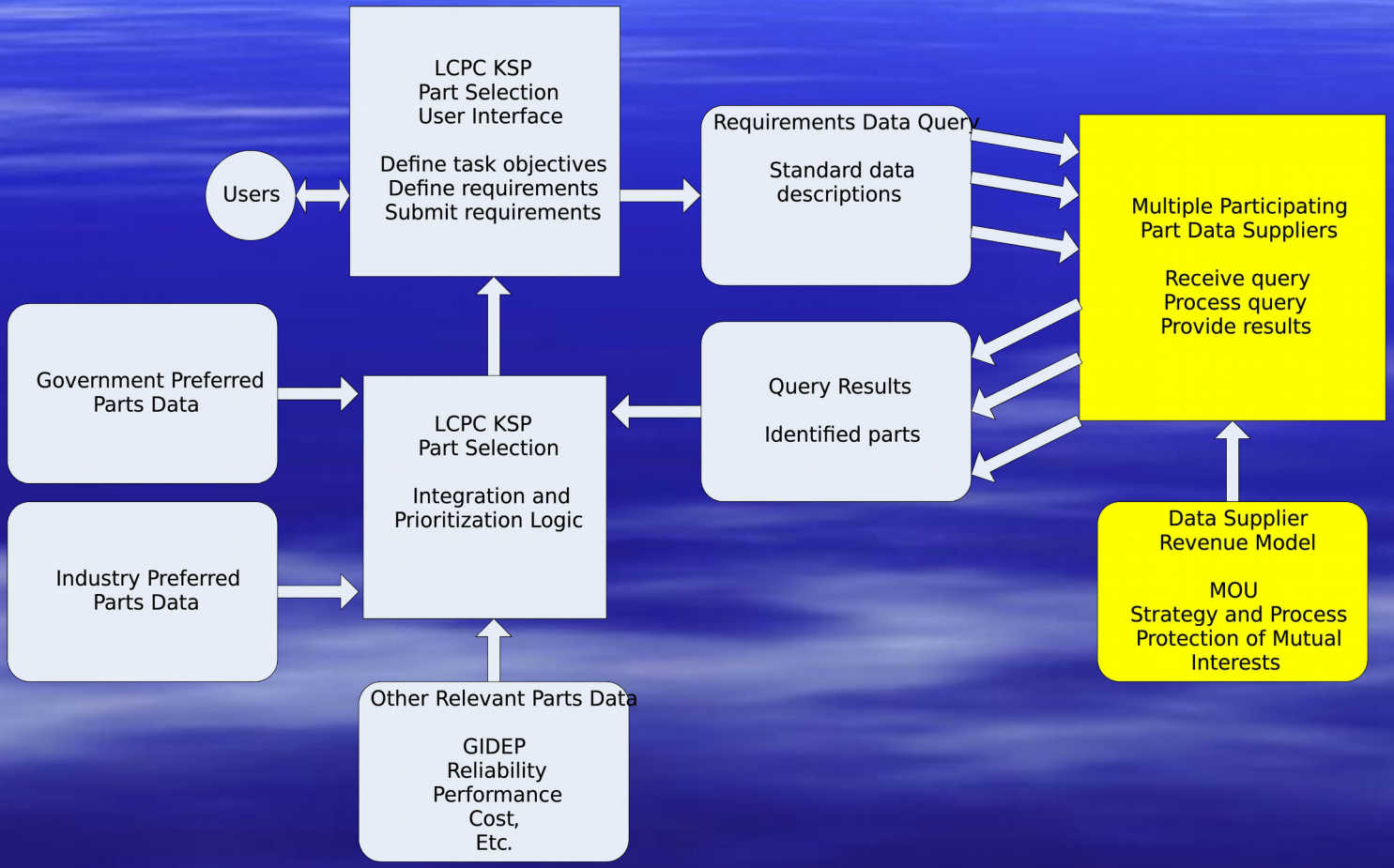
Capability Demonstration Concept



Spiral #4

- **Achieve initial operating capability for part selection capability**
  - **Negotiate business strategy and MOU with participating data suppliers**
  - **Develop capability to integrate part query results from multiple sources and to sort query results using Government and Industry standardization and preference models**
  - **Establish mechanisms to assure long term viability (funding) and continuous improvement of LCPC**

Part Selection Operational Model



Query by Part Number

Query: Part Number

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
1234-5678												

Query Results

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
1234-5678	a	b	c	d	e	f	g	h	k	XYZ, Inc.	500	$10
1234-5678	a	b	c	d	e	f	g	h	k	ABC, Inc.	50	$20
1234-5678	a	b	c	d	e	f	r		k	DEF, Inc.	2	$10
1234-5678	a	p	c	q	e	f	g	h		GHI, Inc.	40	$15
1234-5678		b			n	f	g	m	k	KLO, Inc.	200	$80

Query by Part Characteristics

Query: Part Characteristics

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
	a	b	c	d	e	f	g	h	k			

Query Results

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
1234-5678	a	b	c	d	e	f	g	h	k	XYZ, Inc.	500	$10
1234-5678	a	b	c	d	e	f	g	h	k	ABC, Inc.	50	$20
1234-5679	a	b	c	d	e	f	r		k	DEF, Inc.	2	$10
ABC-5678	a	p	c	q	e	f	g	h		GHI, Inc.	40	$15
8765-4321		b			n	f	g	m	k	KLO, Inc.	200	$80

Query Results – Priority Sort

Query: Part Characteristics

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
	a	b	c	d	e	f	g	h	k			

Query Results ↓ Priority Sort Order

Microcircuit	Part Characteristics – Parametric Data									Source	Availability	Cost
Part Number	#	$	@	&	%	$	^	++	=	Company	Quantity	Each
	Perfect Match – Company + DoD Preferred Part											
	Perfect Match – Company Preferred Part											
	Perfect Match – DoD Preferred Part											
	Almost a Perfect Match – Preferred Part											
	Perfect Match – Not a Preferred Part											
	Almost a Perfect Match – Not a Preferred Part – Meets Key Requirements											
	Perfect Match – Not a Preferred Part – Performance Flag											
	Not a Perfect Match – Not a Preferred Part – Performance Flag											

Spirals #5 -- n

- Develop & integrate new capabilities
  - Parts Management Plan Builder
  - Item Reduction
  - Supply Chain Visibility
  - Performance Measurement
- Continuous Improvement

LCPC KSP
Live Demonstration

Questions?